

# DIS2023: XXX International Workshop on Deep-Inelastic Scattering and Related Subjects



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## Soft Logarithms in Processes with heavy quark

*Thursday, 30 March 2023 11:50 (20 minutes)*

{Observables involving heavy quarks can be computed in perturbative QCD in two different approximation schemes: either the quark mass dependence is fully retained, or it is retained only where needed to regulate the collinear singularity. The two schemes have different advantages and drawbacks. In particular, it is known that the structure of large logarithms arising from soft emissions is different in the two approaches. We investigate the origin of this difference in some detail, focussing on a few specific processes. We show that it is related to the non-commutativity of the small-mass and soft-emission limits. Finally, we perform the resummation of soft-emission logarithms to next-to-leading accuracy in the case of Higgs decay into a  $b\bar{b}$  pair, in the scheme in which the quark mass dependence is fully accounted for.

### Submitted on behalf of a Collaboration?

No

### Participate in poster competition?

**Primary authors:** GHIRA, Andrea (Università degli studi di Genova); RIDOLFI, Giovanni (INFN e Università Genova (IT)); Prof. MARZANI, Simone (Università di Genova and INFN Sezione di Genova)

**Presenter:** GHIRA, Andrea (Università degli studi di Genova)

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